STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0000361
Owner:	Union Electric Company
Address:	One Ameren Plaza, P.O. Box 66149, St. Louis, MO 63166
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Ameren UE, Meramec Power Plant
Facility Address:	8200 Fine Road, St. Louis, MO 63129
Legal Description:	SW ¼, Sec. 3, T42N, R6E, St. Louis County
Latitude/Longitude:	See page 2
Receiving Stream:	See page 2
First Classified Stream and ID:	See page 2
USGS Basin & Sub-watershed No.:	See page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

May 19, 2000 — Effective Date
February 22, 2002 — Revised

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

May 18, 2005 — Expiration Date

Interim Director of Staff, Clean Water Commission

MO 780-0041 (10-93)

FACILITY DESCRIPTION (continued)

Outfall #001 – Power Plant - SIC #4911
Non-contact cooling water.
Design flow is 245 MGD.
Actual flow is 134 MGD.
Latitude/Longitude: +3824039/-09019574
Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (01707)
USGS Basin & Sub-watershed No.: (07140101-070004)

Outfall #002 - Power Plant - SIC #4911
Non-contact cooling water.
Design flow is 405 MGD.
Actual flow is 251 MGD.
Latitude/Longitude: +3824039/-09019574
Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (01707)
USGS Basin & Sub-watershed No.: (07140101-070004)

Outfall #003 - Power Plant - SIC #4911
Bottom ash pond/stormwater.
Design flow is 22.8 MGD.
Actual flow is 0.95 MGD.
Latitude/Longitude: +3824289/-09020362
Receiving Stream: Unnamed Tributary to Meramec River (U)
First Classified Stream and ID: Meramec River (P) (02183)
USGS Basin & Sub-watershed No.: (07140102-080004)

Outfall #004 – Domestic (Human) Sewage – SIC #4952
Extended aeration/sewage treatment plant/sludge disposal is by contract hauler.
Design population equivalent is 238.
Design flow is 0.046 MGD.
Actual flow is 0.028 MGD.
Design sludge production is 4.28 dry tons/year.
Latitude/Longitude: +3823586/-09020033
Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (01707)
USGS Basin & Sub-watershed No.: (07140101-070004)

Outfall #005
Emergency overflow from combined drain sump.
Design flow is 2.0 MGD.
Actual flow is 0.0 MGD.
Latitude/Longitude: +3823586/-09020033
Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (01707)
USGS Basin & Sub-watershed No.: (07140101-070004)

Outfall #006
Caisson sump/screen wash.
Design flow is 1.5 MGD.
Actual flow is 0.43 MGD.
Latitude/Longitude: +3824037/-09019555
Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (01707)
USGS Basin & Sub-watershed No.: (07140101-070004)

FACILITY DESCRIPTION (continued)

Outfall #007
Storm water runoff from the paved employee parking lot and an area which surrounds the oil storage building.
36-inch concrete pipe.
Design flow is 0.39 MGD.
This outfall will not be monitored during this permit period.
Latitude/Longitude: +3824030/-09019569
Receiving Stream: Mississippi River (P)
First Classified Stream and ID: Mississippi River (P) (01707)
USGS Basin & Sub-watershed No.: (07140101-070004)

Outfall #008
Storm water runoff from the plant access road and adjacent lawn areas.
24-inch corrugated metal pipe.
Design flow is 0.123 MGD.
This outfall will not be monitored during this permit period.
Latitude/Longitude: +3824323/-09020193
Receiving Stream: Unnamed Tributary to Meramec River (U)
First Classified Stream and ID: Meramec River (P) (02183)
USGS Basin & Sub-watershed No.: (07140102-080004)

Outfall #009 - Power Plant - SIC #4911
Flyash pond #489/storm water/low volume waste.
Design flow is 14.9 MGD.
Actual flow is 8.0 MGD.
Latitude/Longitude: +3823565/-09020411
Receiving Stream: Meramec River (P)
First Classified Stream and ID: Meramec River (P) (02183)
USGS Basin & Sub-watershed No.: (07140102-080004)

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001 – non-contact Cooling water						
Flow	MGD	*		*	once/weekday**	24 hr. estimate
Temperature, Intake	°F	*		*	once/weekday**	grab
Temperature, Outfall	°F	*		*	once/weekday**	grab
Thermal Discharge	btu/hr	$1.54x10^9$		*	once/weekday**	n/a
Outfall #002 – non-contact cooling water						
Flow	MGD	*		*	once/weekday**	24 hr. estimate
Temperature, Intake	°F	*		*	once/weekday**	grab
Temperature, Outfall	°F	*		*	once/weekday**	grab
Thermal Discharge	btu/hr	$3.23x10^9$			once/weekday**	n/a
Outfall #003 – ash pond Flow	MGD	*		*	once/week	24 hr. estimate
Intake Total Suspended Solids***	mg/L	*		*	once/week	grab
Effluent Total Suspended Solids***	mg/L	*		*	once/week	grab
Net Total Suspended Solids***	mg/L	100		30	once/week	grab
Oils and Grease	mg/L	20		15	once/month	grab
pH – Units	SU	****		****	once/week	grab
Sulfate (as SO^4)	mg/L	*		*	once/quarter*****	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY, THE FIRST REPORT IS DUE July 28, 2002.

Whole Effluent Toxicity (WET) Test	% Survival	(See Special Condition #3)	initial/year	grab

MONITORING REPORTS SHALL BE SUBMITTED ANNUALLY; THE FIRST REPORT IS DUE October 28, 2002 . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #004 – Sewage treatment plant						
Flow	MGD	*		*	once/month	24 hr. estimate
Biochemical Oxygen Demand$_5$	mg/L		45	30	once/quarter*****	******
Total Suspended Solids	mg/L		45	30	once/quarter*****	******
pH – Units	SU	****		****	once/quarter*****	grab
Aeration Tank Testing						
Total Suspended Solids	mg/L	*		*	once/month	grab
Settleability	mg/L	*		*	once/month	grab
Dissolved Oxygen	mg/L	*		*	once/month	grab
Outfall #005 – emergency sump overflow						
Flow	MGD	*		*	(Note 2)	24 hr. estimate
Total Suspended Solids***	mg/L	100		30	(Note 2)	grab
Oil and Grease	mg/L	20		15	(Note 2)	grab
pH - Units	SU	****		****	(Note 2)	grab
Outfall #006 –caisson sump						
Flow	MGD	*		*	once/quarter*****	24 hr. estimate
Total Suspended Solids***	mg/L	*		*	once/quarter*****	(Note 3)
Oil & Grease	mg/L	20		15	once/quarter*****	(Note 3)
pH – Units	SU	*******		*******	once/quarter*****	(Note 3)

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2002 .

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfalls #007 & #008 – (See Special Condition 15)						
Outfall #009 – Flyash Pond #489						
Flow	MGD	*		*	once/week	24 hr. estimate
Intake Total Suspended Solids***	mg/L	*		*	once/week	grab
Effluent Total Suspended Solids***	mg/L	*		*	once/week	grab
Net Total Suspended Solids***	mg/L	100		30	once/week	grab
Oil and Grease	mg/L	20		15	once/month	grab
pH – Units	SU	****		****	once/week	grab
Sulfate (as SO^4)	mg/L	*		*	once/quarter*****	grab
Whole Effluent Toxicity (WET) test	% Survival	See Special Condition #3			initial/year	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY; THE FIRST REPORT IS DUE July 28, 2002 . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** One each weekday means: Monday, Tuesday, Wednesday, Thursday and Friday.

*** Intake Total Suspended Solids values may be used to calculate “net” limitations, however permittee must continue to maintain the ash pond system for adequate retention time for settling. River solids present in intake water are “treated” in the ash pond system but treatment levels are dependent on concentration and types of river solids present in intake water.

**** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

***** Once per quarter in the months of February, May, August and November.

****** A composite sample made up from a minimum of four grab samples collected within a 24 hour period with a minimum of two hours between each grab sample.

******* pH is limited to not less than 6.0 nor greater than the source water. A pH analysis of the source water shall accompany the Discharge Monitoring Reports.

Note 1 – Reserved.

Note 2 – Measurement frequency shall be once/day when discharge occurs. Monitor only when discharge occurs. Report as no-discharge when a discharge does not occur during the report period.

Note 3 – Individual grab samples shall be collected from each Cassion sump and immediately composited for analysis. These samples will be collected prior to mixing with river water used for screen washing.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.
   (b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri’s Water Quality Standards.
   (c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri’s list of waters of the state not fully achieving the state’s water quality standards, also called the 303(d) list.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

C. SPECIAL CONDITIONS (continued)

3. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALLS	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#001, #002, #003 & #009	10%	annually	24 hr. composite	January

At the Ameren UE, Meramec Plant, Whole Effluent Toxicity (WET) tests will be required for Outfalls #001 and #002 only if biocides are used. If the WET test indicates toxicity in the first year of biocide use, the test must be run annually for the duration of the permit or until biocide use is discontinued.

a. Test Schedule and Follow-Up Requirements

(1) Perform a single-dilution test in the months and at the frequency specified above.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.
If the test fails the effluent limit a multiple dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

(a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
(b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

(2) The permittee shall submit a summary of all test results for the test series to the Planning Section of the WPCP, DNR, Box 176, Jefferson City, MO within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

(3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.

(4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in part b.(1) will be required during this period.

(5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of results.

(6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

C. SPECIAL CONDITIONS (continued)

3. Whole Effluent Toxicity (WET) tests (continued)

b. PASS/FAIL procedure and effluent limitations

(1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; p = 0.05) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

(2) To pass a multiple-dilution test:

(a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,
(b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is considered an effluent limit violation.

c. Test Conditions

(1) Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

(2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.

(3) When dilutions are required, upstream receiving stream water will be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).

(4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.

(5) Single-dilution tests will be run with:

(a) Effluent at the AEC concentration;
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(6) Multiple-dilution tests will be run with:

(a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC.
(b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

C. SPECIAL CONDITIONS (continued)

4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:
(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"
    (1) One hundred micrograms per liter (100 ug/L);
    (2) Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,5 dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
    (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
    (4) The level established in Part A of the permit by the Director.
(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

(a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
(b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
(c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
(d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
(e) There shall be no significant human health hazard from incidental contact with the water;
(f) There shall be no acute toxicity to livestock or wildlife watering;
(g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
(h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

7. There shall be no discharge of polychlorinated biphenyl compounds.

8. Discharge of wastewater from this facility must not be alone or in combination with other sources cause the receiving stream to violate the following:

(a) Water temperatures and temperature differentials specified in Missouri Water Quality Standards shall be met.

9. Any pesticide discharge from any point source shall comply with the requirements of Federal Insecticide, Fungicide and Rodenticide Act, as amended (7 U.S.C. 136 et. seq.) and the use of such pesticides shall be in a manner consistent with its label.

C. SPECIAL CONDITIONS (continued)

10. Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day.

11. An upset provision, identical to the upset provision set forth at 40 CFR 122.41(n), is hereby incorporated in this permit.

12. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities (Outfall #004)

    (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions, Part III dated June 22, 1993.
    (b) Site-Specific conditions applicable to this facility are as follows: N/A

13. Treatment or Storage of Ash from Power Plants

    (a) Disposal of ash is not authorized by this permit.
    (b) This permit does not pertain to permits for disposal of ash or exemptions for beneficial uses of ash under the Missouri Solid Waste Management Law and regulations.
    (c) This permit does not authorize off-site storage, use or disposal of ash in regard to water pollution control permits required under 10 CSR 20-6.015 and 10 CSR 20-6.200.
    (d) Subsurface discharges from wastewater treatment ponds or ash ponds shall, at the property boundary, meet the effluent limitations for subsurface waters of the
    state under 10 CSR 20-7.015(7), with appropriate consideration of up-gradient water quality.

14. Permittee is exempt from Clean Water Act section 311 reporting for sulfuric acid and sodium hydroxide as per 40 CFR 117.12.

15. Outfalls #007 & #008 – The company has elected to use best management practices (BMP's) on these outfalls. Monitoring is waived for this permit cycle. If problems occur, monitoring may be reestablished by the department. Periodic inspection of these outfalls will be carried out by AmerenUE to ascertain that BMP's are working.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at p# 0.05)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at p# 0.05)

Test Acceptability criterion:90% or greater survival in controls

Date of Fact Sheet: November 5, 1993, updated October 11, 2001

Date of Public Notice: December 7, 2001

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT
FACT SHEET

This Fact Sheet explains the applicable regulations, rationale for development of this permit and the public participation process.

NPDES PERMIT NUMBER: MO-0000361

FACILITY NAME: AmerenUE, Meramec Power Plant

OWNER NAME: AmerenUE

LOCATION: Sec. 3, T42N, R6E County: St. Louis

RECEIVING STREAM:
Outfalls #001, #002, #004, #005, #006 & #007
Mississippi River (P) (07140101-070004)

Outfalls #003 & #008
Tributary to Meramec River (U) (07140102-080004)

Outfall #009
Meramec River (P) (07140102-080004)

FACILITY CONTACT PERSON: Robert R. Meiners, Manager TELEPHONE: 314-992-7201

FACILITY DESCRIPTION AND RATIONALE

AmerenUE, One Ameren Plaza 66149 (MC-602), St. Louis, Missouri has applied for modification of NPDES Permit No. MO-0000361 for its Meramec Power Plant in St. Louis, Missouri. The AmerenUE, Meramec Power Plant is a coal fired generating station providing electrical services. The Standard Industrial Classification (SIC) code is 4911.

The application for discharge permit requests a modification of the current permit to permit an increase in the thermal discharge in the non-contact cooling water Outfalls #001 & #002 to the Mississippi River. Under the proposed modification, the maximum allowable thermal discharge from Outfall #001 would increase from 1.425×10^9BTU/Hr. to 1.54×10^9BTU/Hr. and the maximum allowable thermal discharge from Outfall #002 would increase from 3.13×10^9BTU/Hr. to 3.23×10^9BTU/Hr. The request has been reviewed by the Department and it was determined these changes would not result in violations of the State Water Quality Standards. Outfalls #001 & #002 are described below:

Outfall #001 - Non-Contact Cooling Water

Water is withdrawn from the river, passed through condensers and other heat exchangers, and returned to the river.

Outfall #002 - Non-Contact Cooling Water

Same as Outfall #001

Outfalls #001, #002, #004 - #007 discharge into the Missippi River (07140101-070004), and Outfalls #003, #008 & #009 discharge into the Meramec River (07140102-080004) near its confluence with the Mississippi River.

According to 10 CSR 20-7.031 Missouri Water Quality Standards, Missouri Department of Natural Resources (the Department) "defines the Clean Water Commission's water quality objectives in terms of water uses to be maintained and the criteria to protect those uses". For the portion of the Mississippi River, where Outfalls #001 & #002 discharge, the Water Quality Standards list the following beneficial water uses to be maintained: aquatic life protection (general warm-water fishery); livestock, wildlife watering; drinking water supply; irrigation; industrial; boating. It has been determined that the permit modification will not result in impairment of the above beneficial uses.

This permit will be issued for a period of five years.

WATER QUALITY STANDARDS REVIEW SHEET

Facility Name: AmerenUE, Meramec Power Plant

NPDES #: MO-0000361

Design Effluent Flows:
#001 cooling water---245 MGD
#002 cooling water---405 MGD
#003 ash-sluicing water---32.4 MGD = 50 cfs
#004 sanitary wastewater---0.046 MGD
#005 emergency overflow from sump---2 MGD
#006 discharge from Caisson sump---1.5 MGD

Receiving Stream: Mississippi River

Stream Class: Class P (permanent flow)

Beneficial Uses of the Mississippi River: Aquatic-life protection (general warm-water fishery); livestock, wildlife watering; drinking-water supply; irrigation; industrial; boating.

Receiving stream low flow (7Q10): estimated 50,000 cfs

A calculation using current mixing-zone requirements indicate the existing permitted BTU limits would not raise the temperature at the edge of the mixing zone more than 1.5°F:

50,000 cfs x 25% = 12,500 cfs in mixing zone

12,500 cfs x 62 lbs/cubic feet x 60 x 60 = 2.79 billion lbs/hr total allowable BTUs/hr = 4.378 billion
4.378 / 2.79 = 1.5 degrees F increase, which is in conformance with water quality standards.

With the dilution available, "secondary" limits for conventional pollutants, and existing limits for oil and grease, are satisfactory.

Outfall #003, the ash sluicing discharge, is the only constant discharge expected to possibly contain toxins; since the dilution in the "zone of initial dilution" would be:

12,500 cfs x 10% = 1,250 cfs in ZID
1,250 cfs / 50 cfs = 25 times dilution in the ZID

The minimum "acceptable effluent concentration" (AEC) for a whole-effluent toxicity test is now 10% effluent. An initial WET test at the AEC is recommended for this discharge.

Reviewer: RG Date: 3-25-91, updated 4-29-99 Section Chief: JM